

**Number and Title:** NDPMC-F-0701-PA (Grass/Legume/Forb Demonstration)

**Objective:** Compare performance differences among species and varieties of various grasses, forbs, and legumes. The site will be used for education and demonstration and is open for public viewing.

**Date Seeded:** May 15, 2007

**Cooperators:** Jerauld County Conservation District and the USDA-NRCS

**Methods and Materials:** There are fifty-one plots of various grasses, legumes, forbs, and mixtures of each. They were seeded with a 6-foot plot drill. The drill consisted of a cone-seeder attachment for each opener so individual rows were metered separately. Plot size is 12' by 48' with 16 rows per plot for the grass plots. The forb and selected legumes plots were 28' in length and the same width. There are 6' borders separating each plot and larger borders on the ends. These areas were seeded to Bad River blue grama. Two larger plots about ½-ac each along the sides of the demonstration area were seed to an introduced and a native mixture. The south side plot was seeded to an introduced mixture of 35% Reliant intermediate wheatgrass, 35% Fleet meadow brome grass, and 30% Travois alfalfa. The north side plot was seeded to a native mixture of 10 species at 10% each. These included Bonilla big bluestem, Bad River blue grama, Lodorm green needlegrass, Tomahawk Indiangrass, Badlands little bluestem, needle-and-thread, Goshen prairie sandreed, Pierre sideoats grama, Forestburg switchgrass, and Rodan western wheatgrass.

**Site Information:** The site was previously planted to alfalfa. The soils are a Lane silty clay loam and the Ecological Site Description is Clayey. The site is level. The property is owned by the Jerauld Conservation District and is located on the north edge of Wessington Springs, South Dakota adjacent to a county highway. The land was sprayed and tilled in 2006. A seedbed was prepared in the spring of 2007 by cultivating, harrowing, and roller packing. Above average rainfall was received in April and May. The plots and borders were mowed twice for weed control during the growing season.

Table 1. Plant performance at the Jerauld County Demonstration Site.

Common name/Variety (VNS=variety not stated)	(1) Weed Competition	(2) Stand Rating	(3) Vigor
Crested wheatgrass/AC2	3	4	2
Wheatgrass hybrid/NewHy	2	2	1
Timothy/Climax	6	7	3
Orchardgrass/Latar	5	5	3
Russian wildrye/Mankota	4	4	2
Altai wildrye/VNS	5	3	2
Dahurian wildrye/Arthur	1	2	1
Smooth brome grass/Rebound	2	2	1
Meadow brome grass/Fleet	2	2	1
Intermediate wheatgrass/Reliant	2	2	1
Intermediate wheatgrass/Manifest	3	3	3
Intermediate wheatgrass/Haymaker	2	2	1
Intermediate wheatgrass/Beefmaker	2	2	1
Pubescent wheatgrass/Manska	3	3	2
Tall wheatgrass/Alkar	2	2	3
Prairie junegrass/VNS	8	8	NA
Slender wheatgrass/Pryor	4	4	4
Western wheatgrass/Rodan	3	4	2
Canada wildrye/Icy Blue	3	4	4
Canada wildrye/Mandan	3	2	2
Green needlegrass/Lodorm	3	3	3
Porcupinegrass/VNS	5	6	5

Needle-and-thread/VNS	4	4	4
Buffalograss/Bowie	2	2	1
Blue grama/Bad River	3	3	3
Little bluestem/Badlands	5	5	4
Sideoats grama/Pierre	3	3	3
Big bluestem/Bonilla	4	4	4
Switchgrass/Forestburg	5	4	5
Indiangrass/Tomahawk	5	5	4
Meadow brome (Fleet) + alfalfa (Travois)	2	2	2
Intermediate (Reliant) + cicer (Lutana)	2	2	2
Western (Rodan) + green needle (Lodorm) + purple prairieclover (Bismarck)	4	4	4
Sideoats (Pierre) + little blue (Badlands) + purple prairieclover (Bismarck)	4	4	4
Cicer milkvetch/Lutana	4	4	3
Alsike clover/VNS	2	2	2
Ladino white clover/VNS	4	4	3
Red clover/Kenland	3	2	2
Alfalfa/Travois	2	2	2
Yellow alfalfa/SDSU	3	3	3
Birdsfoot trefoil/Dawn	2	2	2
Sainfoin/Eski	2	3	3
Sideoats (Pierre) + Purple prairieclover (Bismarck)	4	4	4
Sideoats (Pierre) + White prairieclover (Antelope)	4	4	4
Sideoats (Pierre) + Canada milkvetch (9069117)	4	6	4
Sideoats (Pierre) + Illinois bundleflower (MN)	4	4	4
Sideoats (Pierre) + Blue flax (Appar)	4	4	4
Sideoats (Pierre) + Yellow coneflower (Stillwater)	5	5	5
Sideoats (Pierre) + Blanketflower (VNS)	4	4	4
Sideoats (Pierre) + Maximillian sunflower (Medicine Creek)	5	5	5
Sideoats (Pierre) + Stiff sunflower (Bismarck)	4	4	4

08/24/07, 1 = no weeds, 9 = all weeds

08/24/07, 1 = highest, 9 = lowest

08/24/07, 1 = highest, 9 = lowest

**Results and Discussion:** The plots were off to a good start after seeding. Evaluation ratings were taken on August 24, 2007 on stand, vigor, and weed competition. NewHy hybrid wheatgrass, Arthur Dahurian wildrye, Rebound smooth brome grass, Fleet meadow brome grass, Alkar tall wheatgrass, Mandan Canada wildrye, and all of the intermediate wheatgrass varieties established well and had stand ratings of 2. Bowie buffalograss also looked very good and was the only warm-season entry to have an initial stand rating of 2. Climax timothy and prairie junegrass did not establish well. Comparing the legumes, alsike clover, Kenland red clover, Travois alfalfa, and Dawn birdsfoot trefoil were off to a good start and had stand ratings of 2. The forb plantings (with sideoats grama) and the grass/legume mixtures generally had stand ratings of 4 to 6 and were slower to establish. Weed competition and vigor ratings varied considerably across all plots. The larger sized native and introduced mixture plots seeded on the north and south ends, established well.